

# Exhibit X

HEALTH NEWS

## What is fetal tissue research? And why is it important to medicine?

The Trump administration is cutting back funding for research involving fetal tissue. Scientists say a total ban on such research would be "catastrophic."



— Scientists are looking for effective alternatives to fetal cells for research. Until that happens, fetal cells continue to be the gold standard for certain kinds of research, say doctors. nicolas\_ / Getty Images

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**By Erika Edwards**

Doctors and scientists are denouncing the Trump administration's decision to cut funding for research that uses fetal tissue, saying that the material is essential for life-saving medical research.

The administration announced Wednesday that it would [drastically cut federal spending](#) on medical research that uses "fetal tissue from elective abortions." The move will affect multimillion-dollar research projects at the National Institutes of Health and the University of California, San Francisco.

Supporters of the administration's decision have likened the research to a marketplace that deals in "[aborted baby body parts](#)." That kind of language can elicit a visceral reaction. Researchers strongly disagree with that portrayal, however, and say fetal tissue research projects are meticulously vetted.

"There's a misconception that fetal tissue research is the wild, Wild West," said Ellie Dehoney, vice president of policy and advocacy for [Research!America](#), a nonprofit group that advocates for scientific research.

"There's a very careful look at every research grant. If a project makes the cut, it means there is a belief by scientists not involved in research that there's a beneficial purpose for advancing science," Dehoney told NBC News.

Indeed, the American Medical Association, which supports fetal tissue research, has a detailed [code of ethics](#) for how to carry out such research.

Sam Hawgood, the chancellor of the University of California, San Francisco, said the university's research using fetal tissue to find a cure for HIV – now halted by the administration's action – was based in sound science. "UCSF exercised appropriate oversight and complied with all state and federal laws," he [said in a statement](#).

## Why is fetal tissue used in research?

Scientists use fetal tissue as a source of fetal cells. These cells have been used for research since the 1930s, and the government has funded such research since the 1950s, when it was used to create one of the [biggest medical advances](#) of the 20th century: the polio vaccine.

Since then, fetal cells have been used in hundreds of thousands of other research projects. Scientists have used them to create other vaccines, such as the rubella vaccine, and to improve a wide variety of techniques used in medicine, such as in vitro fertilization. They are also used to study birth defects, eye diseases, Parkinson's and Alzheimer's disease, [AIDS](#) and spinal cord injuries.

Scientists say fetal cells are superior to adult cells mainly because they can transform into any cell in the body. They also replicate quickly, and don't have the same immune response as adult cells.

This means researchers can inject them into lab mice to study human diseases without the risk of the cells being rejected by the animals' immune systems.

A ban or strict limitation on fetal tissue research would be "catastrophic," said Dr. Elias Zambidis, a pediatric oncologist at Johns Hopkins who does research on stem cells.

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## Why put [fetal] tissue in a biohazard box? Why not use it to help others?

Zambidis said he has given a great deal of thought to the medical ethics of fetal tissue research. "I understand there are two sides to the controversy, and I personally respect both sides," he told NBC News.

"But why put that tissue in a biohazard box?" Zambidis asked. "Why not use it to help others?"

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"If you establish that you're using tissue that's causing no harm to a living being, and it holds the potential to save lives or restore health and function, that's important work," Dehoney said.

Zambidis agreed. "Fetal tissue research absolutely saves patients," he said.

## Are there effective alternatives?

Last December, the NIH announced a [\\$20 million initiative](#) aimed at finding alternatives to fetal tissue for research purposes. As part of Wednesday's announcement, Department of Health and Human Services said it would "ensure that efforts to develop such alternatives are funded and accelerated."

Some researchers, including those in Zambidis' lab at Johns Hopkins, are already using one potential alternative: induced pluripotent stem cells, or iPS cells. These don't come from fetal tissue; they come from skin or blood cells and have been reprogrammed back into an embryonic-like state.

But iPS cells aren't the perfect substitute. Experts say the cells aren't quite ready to be used as effective alternatives to fetal cells. Indeed, Zambidis calls them a "bad Xerox copy," but predicts the science will continue to advance so that one day they will work as well as fetal cells.

"Our holy grail is to create alternatives to fetal stem cells. But it's not going to happen tomorrow," Zambidis said.

Fetal cells continue to be the gold standard in certain types of research, and indeed, any alternatives developed will have to be comparable in quality and function. That's one reason why fetal cells are still needed, so scientists can see how new technologies stack up against them.

"Whatever the next best thing is, it will still have to be compared to the gold standard," he said.

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